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| 09/889,473 | 07/17/2001 | Ryuichi Murai | NAKI-BP44 | 4113 |
| 21611 | 7590 | 05/03/2004 | EXAMINER | |
| SNELL & WILMER LLP 1920 MAIN STREET SUITE 1200 IRVINE, CA 92614-7230 | | | QUARTERMAN, KEVIN J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2879 | |

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

mw

Office Action Summary

Application No.

09/889,473

Applicant(s)

MURAI ET AL.

Examiner

Kevin Quarterman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-33 is/are allowed.
- 6) ☒ Claim(s) 1-7, 34-38 and 42 is/are rejected.
- 7) ☒ Claim(s) 8-20, 39-41 and 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>0104</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed 02 January 2004 has been entered and overcomes the objection to the title.
2. Applicant states in the first paragraph of page 14 in the remarks section that the "deletion of Claims 34-37 address the formality matters." The Examiner notes that applicant has not provided proper instruction to formally cancel or delete claims 34-37. Thus, the rejections of these claims are repeated in this office action.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 35 is rejected under 35 U.S.C. 101 because the claim embraces or overlaps two different statutory classes of invention. Claim 35 cites an apparatus—i.e. a gas discharge panel—where claim 34, upon which claim 35 depends, cites a method of manufacturing a gas discharge panel (See MPEP § 2173.05(p)).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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7. Regarding claim 35, the preamble of the claim begins with "The gas discharge panel of claim 34, wherein..." where claim 34 is a method of manufacturing a gas discharge panel.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3, 6-7, 34, and 36-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Kurogi (US 6495957).

10. Regarding independent claim 1, Figures 1-12 of Kurogi show a gas discharge panel (1) having a plurality of cells (C) arranged in a matrix, each cell being filled with a discharge gas (col. 5, ln. 43) which is enclosed between a facing pair of substrates (10, 20) and a plurality of barrier ribs (29) interposed between the pair of substrates, and plural pairs of display electrodes (X, Y) arranged on an inner surface of one of the substrates so as to extend in a row direction of the matrix, each pair of display electrodes comprising two bus lines (42) being parallel to each other and extending in the row direction of the matrix; one or more inner protrusions (412) being arranged within each cell on an inner side of one or both of the bus lines so as to protrude toward an inner side of an opposite bus line; and one or more outer protrusions (412) being

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arranged so as to protrude from an outer side of one or both of the bus lines, at least a section of each of the inner and outer protrusions being positioned between two adjacent barrier ribs.

11. Regarding claim 2, Figures 1-12 of Kurogi shows a relation $P_e = A \times P_s / n$ being satisfied in relation to the two bus lines, P_e being a pitch of either the inner or outer protrusions, P_s being a pitch of the cells along the row direction of the matrix, A being a positive value less than 1, and n being a natural number.

12. Regarding claim 3, Kurogi discloses that the bus lines are composed of a metal and the inner and outer protrusions are composed of a transparent electrode material (col. 5, ln. 5-7).

13. Regarding claim 6, Figure 9 of Kurogi shows a width of an end section of each of the inner protrusions along the row direction of the matrix being narrower than a base section thereof.

14. Regarding claim 7, Figure 3 of Kurogi shows a shortest discharge gap (w_1) between the plural pairs of display electrodes corresponding to a minimum discharge firing voltage or a voltage in the vicinity thereof as shown on a Paschen curve plotting a relationship between a Pd product and a discharge firing voltage, P being a pressure of the discharge gas and d being a discharge gap.

15. Regarding independent claims 34 and 36-37, Figures 1-12 of Kurogi show a method of manufacturing a gas discharge panel including a display electrode arranging step for arranging plural pairs of display electrodes (X, Y) on a main surface of a first substrate (10) so as to extend in a row direction, an insulating layer covering step for

covering the first substrate with an insulating layer (18), and a cell forming step for forming a plurality of cells (C) in a matrix by arranging the main surface of the first substrate to face a main surface of a second substrate (20) with a plurality of barrier ribs (29) extending in a column direction interposed therebetween, each cell being an area in which a pair of display electrodes extend across two adjacent barrier ribs, wherein the display electrode arranging step has a substep for arranging two bus lines (42), which are parallel to each other and extend in a same direction, and for providing inner protrusions (412), which are arranged within each cell on an inner side of one or both of the bus lines, and the insulating layer covering step has a substep for forming an insulating layer of magnesium oxide.

16. Regarding independent claim 38, Kurogi discloses each of the like limitations of independent claim 1, as discussed earlier. Figure 8 of Kurogi also shows each pair of electrodes being extended in a same direction; one or more inner protrusions (416) being arranged on an inner side of one or both of the electrode bases so as to protrude toward an inner side of an opposite electrode base; and one or more outer protrusions (415) being arranged so as to protrude from an outer side of one or both of the electrode bases.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 4-5 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurogi.

19. Regarding claims 4-5, Kurogi teaches the claimed limitations discussed earlier but fails to exemplify a surface area of each of the outer protrusions being greater than a surface area of each of the inner protrusions.

20. However, Kurogi discloses that the protrusions may be asymmetric about a point positioned centrally in the direction of the row on the base (col. 3-4), which would give the outer protrusions a greater surface area than the inner protrusions.

21. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the electrodes of Kurogi with outer protrusions having greater surface areas than those of the inner protrusions, since a change in size is generally recognized as being within the level of ordinary skill in the art.

22. Regarding claim 42, Kurogi teaches the claimed limitations of claim 10, as discussed above, but fails to exemplify the bus lines being composed of silver.

23. However, Kurogi discloses that the bus lines may be formed of a light-tight substance comprising a metal film (col. 10, ln. 21-22).

24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide bus lines composed of silver in the structure of Kurogi, since it is within the general skill of a worker in the art to select a known material on the bases of its suitability for conducting electricity.

Allowable Subject Matter

25. Claims 21-33 are allowed.

26. Regarding independent claim 21, the prior art of record neither shows or suggests a gas discharge panel having, in addition to other limitations of the claim, plural pairs of display electrodes, wherein each pair of display electrodes comprising two bases being parallel to each other and extending in the row direction of a matrix and one or more inner protrusions being arranged within each cell on an inner side of each of the bases so as to protrude toward an inner side of an opposite base, the ends of the inner protrusions arranged on each of the bases being out of alignment along the row direction of the matrix. Due to their dependency upon independent claim 21, claims 22-27 are also allowable.

27. Regarding independent claims 28 and 33, the prior art of record neither shows or suggests a gas discharge panel having, in addition to other limitations of the claim, plural pairs of display electrodes, wherein each pair of display electrodes comprising two bases being extended in a row direction of a matrix and having a snaky configuration along the plural pairs of display electrodes. Due to their dependency upon independent claim 28, claims 29-32 are also allowable.

28. Claims 8-20, 39-41, and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

29. Regarding claim 8, the prior art of record neither shows or suggests a gas discharge panel having, in addition to all other limitations of independent claim 1 upon

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which claim 8 depends, an insulating layer composed of magnesium oxide and a material having a lower electron emission rate than magnesium oxide. Due to its dependency upon claim 8, claim 9 is also allowable.

30. Regarding claim 10, the prior art of record neither shows or suggests a gas discharge panel having, in addition to all other limitations of independent claim 1 upon which claim 10 depends, the ends of the outer protrusions arranged on each of the bus lines being out of alignment along the row direction of the matrix. Due to their dependency upon claim 10, claims 11-20 and 43 are also allowable.

31. Regarding claim 39, the prior art of record neither shows or suggests a gas discharge panel having, in addition to all other limitations of independent claim 38 upon which claim 39 depends, each pair of electrodes with two electrode bases that extend in a same direction and snake along the one or more pairs of electrodes.

32. Regarding claim 40, the prior art of record neither shows or suggests a gas discharge panel having, in addition to all other limitations of independent claim 38 upon which claim 39 depends, the ends of the inner protrusions arranged on each of the electrode bases out of alignment. Due to its dependency upon claim 40, claim 41 is also allowable.

Response to Arguments

33. Applicant's arguments with respect to independent claim 1 have been fully considered but are not persuasive.

34. In response to applicant's argument that the Kurogi reference does not teach outer protrusions within the boundary of a cell to increase luminous nor disclose the

advantages of an increased luminous efficiency and discharge capacity that can be realized by the outer protrusions, the Examiner notes that Figure 3 of Kurogi and Figure 4 of the instant application, as compared in applicant's remarks, have the same basic configuration with outer protrusions within the boundary of each cell. Thus, the Examiner holds that the Kurogi reference does indeed teach outer protrusions within the boundary of a cell.

35. The Examiner also notes that applicant's arguments that the Kurogi reference is not recognized as solving the problem solved by applicant's claimed invention are not germane to a rejection under section 102 (MPEP § 2131.05).

Conclusion

36. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2457.

Kevin Quarterman
Examiner
Art Unit 2879

kq 
27 April 2004


Nimesh Patel
Supervisory Patent Examiner
Art Unit 2879